

## **AMENDMENTS TO THE CLAIMS**

The following listing of claims will replace all prior versions and listings of claims in the application.

### **LISTING OF CLAIMS**

1- 73. (Cancelled)

74. (New) A system comprising:

a compressor including a motor operable to power said compressor to an ON condition;

a motor protector operable to restrict power to said motor in response to motor operating parameters;

a diagnostic device operable to diagnose a fault condition based on a moving window time average of said compressor operating in said ON condition when said motor protector restricts power to said motor.

75. (New) The system according to Claim 74, wherein said diagnostic device determines an operating time for said compressor and an idle time for said compressor.

76. (New) The system according to Claim 74, wherein said diagnostic device determines a length of time said motor is outside of specified operating parameters.

77. (New) The system according to Claim 74, further comprising an electrical plug, said diagnostic device being integrated into said electrical plug.

78. (New) The system according to Claim 74, further comprising a contactor providing a demand signal, said compressor operating in said ON condition in response to said demand signal.

79. (New) The system according to Claim 78, wherein said diagnostic device is integrated into said contactor.

80. (New) The system of Claim 74, further comprising an intelligent device in communication with said diagnostic device and operable to indicate said fault condition.

81. (New) The system according to Claim 80, wherein said intelligent device receives diagnostic information from said diagnostic device.

82. (New) The system according to Claim 74, further comprising:  
a sensor in communication with said diagnostic device and operable to monitor an operating characteristic of the system wherein said diagnostic device receives said operating characteristic from said sensor and is operable to shut down said compressor based on said operating characteristic.

83. (New) The system according to Claim 82, wherein said sensor is a pressure sensor operable to monitor a discharge pressure of said compressor.

84. (New) The system according to Claim 82, wherein said sensor is a temperature sensor operable to monitor ambient temperature.

85. (New) The system according to Claim 82, wherein said sensor is a voltage sensor operable to monitor electrical voltage being supplied to said motor.

86. (New) The system according to Claim 82, wherein said diagnostic device uses a demand signal in conjunction with said sensor to monitor said operating characteristic.

87. (New) The system according to Claim 82, wherein said sensor is a current sensor operable to monitor electrical current supplied to said motor.

88. (New) The system according to Claim 87, wherein said diagnostic device determines said status of said motor protector based on input from said current sensor.

89. (New) The system of Claim 74, wherein said fault condition is a compressor fault.

90. (New) The system of Claim 74, wherein said fault condition is a system fault.

91. (New) A system comprising:

a compressor including a motor operable to power said compressor to an ON condition;

a motor protector operable to restrict power to said motor in response to motor operating parameters;

a diagnostic device operable to diagnose a fault condition when said motor protector restricts power to said motor based on a moving window time average of said compressor operating in said ON condition.

92. (New) The system according to Claim 91, wherein said diagnostic device determines an operating time for said compressor and an idle time for said compressor.

93. (New) The system according to Claim 91, wherein said diagnostic device determines a length of time said motor is outside of specified operating parameters.

94. (New) The system according to Claim 91, further comprising an electrical plug, said diagnostic device being integrated into said electrical plug.

95. (New) The system according to Claim 91, further comprising a contactor providing a demand signal, said compressor operating in said ON condition in response to said demand signal.

96. (New) The system according to Claim 95, wherein said diagnostic device is integrated into said contactor.

97. (New) The system of Claim 91, further comprising an intelligent device in communication with said diagnostic device and operable to indicate said fault condition.

98. (New) The system according to Claim 97, wherein said intelligent device receives diagnostic information from said diagnostic device.

99. (New) The system according to Claim 91, further comprising:  
a sensor in communication with said diagnostic device and operable to monitor an operating characteristic of the system wherein said diagnostic device receives said operating characteristic from said sensor and is operable to shut down said compressor based on said operating characteristic.

100. (New) The system according to Claim 99, wherein said sensor is a pressure sensor operable to monitor a discharge pressure of said compressor.

101. (New) The system according to Claim 99, wherein said sensor is a temperature sensor operable to monitor ambient temperature.

102. (New) The system according to Claim 99, wherein said sensor is a voltage sensor operable to monitor electrical voltage being supplied to said motor.

103. (New) The system according to Claim 99, wherein said diagnostic device uses a demand signal in conjunction with said sensor to monitor said operating characteristic.

104. (New) The system according to Claim 99, wherein said sensor is a current sensor operable to monitor electrical current supplied to said motor.

105. (New) The system according to Claim 104, wherein said diagnostic device determines said status of said motor protector based on input from said current sensor.

106. (New) The system of Claim 91, wherein said fault condition is a compressor fault.

107. (New) The system of Claim 91, wherein said fault condition is a system fault.